

**VAC**

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November 4, 1997

Mr. Michael Young
Integrated Environmental Services, Inc.
3990 Westerly Place, Suite 210
Newport Beach, CA 92660

RE: Proposal for Remediation of Ex-situ Pile at Former McDonnell Douglas C-6 Facility, Torrance, California

Dear Mr. Young:

Terra Vac is pleased to provide the following cost estimate for remediation of the chlorinated hydrocarbons in your ex-situ pile at the former McDonnell Douglas C-6 Facility, Torrance, California. This estimate is based on the information provided by Mr. Christopher Stoker during our meeting on Thursday, October 30, 1997, and upon additional analytical data provided on Monday, December 3, 1997.

Terra Vac proposes to form a single ex-situ pile that will be approximately 80 feet by 170 feet by five feet high. This pile will be completed with 6 mil visqueen forming the bottom of the pile and another layer of 6 mil visqueen covering the top. The outer barrier will consist of a row of straw bales stacked two bales high (~5 ft.). Terra Vac will provide the visqueen and straw bales and will install these as the pile is created. It is understood that a heavy equipment operator will be provided by others to complete the earth moving work.

Approximately 10 horizontal wells will be centered vertically within the stack, spaced across the length of the pile. Each well will be 2" PVC well screen and extend roughly 40 feet into the pile from the outer edge. One end of each well will be capped, while the other is connected to schedule 40 PVC pipe. Each well will have an isolation valve and monitoring ports installed for optimization of the system during operation. Terra Vac will provide all materials and labor for the installation of these wells and intends to install them during the creation of the ex-situ pile.

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Each horizontal well will be connected to a manifold which will extend from the pile to the compound area and treatment equipment. Terra Vac proposes to use a 200 cfm vacuum extraction system connected through two, 1,000 pound carbon vessels. This unit will come complete with a various locations permit, approved by the South Coast Air Quality Management District. Terra Vac assumes that 240 volt, single phase, 60 amp power will be made available at the equipment for connection to the trailer mounted treatment equipment.

Upon completion of the compound installation, a fence will be erected surrounding the compound for the protection of personnel and equipment. Once this is completed, the system will be started, and inlet and stack samples will be taken and analyzed using an on-site mobile gas chromatograph. This will permit determination of baseline concentration data for assistance in determining system effectiveness. Operations will continue, with weekly site visits occurring to sample the system inlet and exhaust. These samples will be analyzed using an Organic Vapor Analyzer, to ensure permit compliance and monitor system operational performance.

*d. l. + PRG,
ambient air +
use bag sample*

Based on the data provided, we estimate that current contamination levels will be reduced to below detectable levels ($\sim 2.5 \mu\text{g/kg}$) within one month of operations. After one month of operations, Terra Vac will obtain 5 soil samples from throughout the ex-situ pile for submittal to a state certified analytical laboratory. Each sample will be analyzed for volatile organics using EPA method 8260. Within one week of receipt of the analytical results, Terra Vac will prepare and submit to Integrated Environmental Services, Inc., a letter report describing the site activities and results of the confirmatory sampling.

The total cost for installation of the system, one month of operations, demobilization of the equipment, and preparation of a letter report is \$31,275.00. Each additional month of operations will be completed at a cost of \$6,189.00.

*equipment rental
permitting
fence
✓ spent c.c. log*

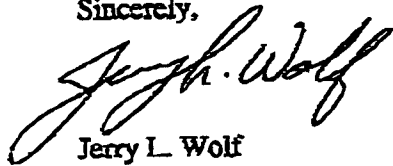
This proposal is based on the following assumptions:

1. All earth-moving requirements will be fulfilled by others.
2. Electrical power (240v/60Hz/60A) will be provided to the treatment equipment.
3. The ex-situ pile will be left in place upon completion of the remediation activities.
4. Upon completion of the remediation, the carbon vessels will remain on-site for use during the full scale project.
5. Only one round of sampling will be required to verify cleanup levels.

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Thank you for allowing Terra Vac to provide this cost estimate to Integrated. We are prepared to move forward with this project within 5 working days of receipt of approval. I look forward to working with you on this project. Should you have any questions or comments concerning this proposal, please feel free to contact me at my office at (714) 252-8900 or by mobile phone at (714) 681-3381.

Sincerely,



Jerry L. Wolf
Project Manager

cc: file 31-0285.12